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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/789,983	03/02/2004	Toshio Morita	Q79556	9662

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SUGHRUE MION, PLLC
2100 PENNSYLVANIA AVENUE, N.W.
SUITE 800
WASHINGTON, DC 20037

EXAMINER

STADLER, REBECCA M

ART UNIT	PAPER NUMBER
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1754

DATE MAILED: 04/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/789,983	MORITA ET AL.	
	Examiner	Art Unit	
	Rebecca M. Stadler	1754	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☒ Claim(s) 6 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>3/2/2004</u> . | 6) <input type="checkbox"/> Other: _____ |

Claim Objections

Claim 6 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 6 claims a particle size of 200 nm or less. However, independent claim 1 already requires that the fine particles are 20 nm or less.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3, 6, and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by JP No. Hei 2[1990]-6617 to Murata. For purposes of this rejection, the English translation will be used.

As to claims 1, 6 and 7, Murata discloses a process for manufacturing a carbon fiber (see page 3, line 19), by thermally decomposing a carbon material (see page 3, lines 26-28 and page 5, lines 31-35) in the presence of a catalyst (see page 4, lines 13-20). The catalyst is in the presence of a surfactant/solvent (thereby rendering it a fluid) (see page 4, lines 24-35). The catalyst particles are less than 500 Å (see page 4, lines 21-23), which encompasses the limitation of less than 20 nm. Finally, the catalyst is a compound comprised of at least one of Fe, Ni, or Co (see page 4, lines 13-20). Murata also discloses magnetite (see page 4, line 16). It appears that the instantly claimed product (Fe_3O_4) by process (within a process) is the same as that which is claimed. When the examiner has found a substantially similar product as in the applied prior art, the burden of proof is shifted to the applicant to establish that their product is patentably distinct and not the examiner to show the same process as making. See, e.g., In re

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Brown, 459 F.2d 531, 173 U.S.P.Q. 685 (CCPA 1972); In re Fessman, 489 F.2d 742, 180 U.S.P.Q. 324 (CCPA 1974).

With respect to claim 3, Murata teaches anionic and cationic surfactants (see page 4, lines 24-35.

Claims 1 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by JP No. Sho 59[1984]-76921 to Komatsu. For purposes of this rejection, the English translation will be used.

As to claims 1 and 6, Komatsu discloses a method for manufacturing carbon fibers (see page 3, line 16), by thermally decomposing a carbon material (page 3, lines 22-23 and line 29) in the presence of a catalyst dispersed in a solution that is obtained by adding a plasticizer to an organic solvent (see page 3, lines 16-17). The catalysts are fine Fe particles having an average particle size of 100 Å (see page 4, Application Example 1).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various

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claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 2 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murata.

As to claims 2 and 4, Murata discloses a range of catalytic particles of 0.05-5.0 wt% and surfactant 0.10-50 wt% (the surfactant can be a sulfur compound, see page 4, lines 24-35) (see page 5, lines 5-6). When the prior art teaches overlapping ranges, the claim is prima facie obvious. See, e.g., In re Malagari, 499 F. 2d 1297, 182 U.S.P.Q. 549 (CCPA 1974).

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Komatsu in view of USP 6,759,693 to Vogeli.

As to claim 2, Komatsu does not disclose the mass percent of the catalyst. However, Vogeli '693 discloses that the catalyst concentration is a process parameter that can be adjusted to control growth of the carbon nanotube (see column 4, lines 27-31). It would have been obvious to one of ordinary skill in the art at the time the invention was made to adjust the catalyst concentration, since it has been held that discovering an optimum value or a result effective variable involved only routine skill in the art. See, e.g., In re Boesch, 617 F.2nd 272, 205 U.S.P.Q. 215 (CCPA 1980). The artisan would have been motivated to adjust the catalyst concentration by the reasoned explanation that doing so controls the type and extent of nanotube growth.

Claims 5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Komatsu.

With respect to claim 5, Application Example 1 (page 4) in Komatsu discloses spraying the catalyst and solvent into the reactor before adding the carbon and protective gas. It would

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have been obvious to add the catalyst, solvent, carbon source and protective gas all at the same time because the selection of any order of mixing ingredients is prima facie obvious. See, e.g., In re Gibson, 39 F.2d 975, 5 U.S.P.Q. 230 (CCPA 1930).

Regarding claim 7, Komatsu suggests using an iron oxide (see page 3, line 14). Therefore it would have been obvious to one of ordinary skill in the art to select Fe_3O_4 as the iron oxide.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rebecca M. Stadler whose telephone number is 571-272-5956.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on 571-272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Rebecca M. Stadler

Rebecca M. Stadler

Colleen P. Cooke

COLLEEN P. COOKE
PRIMARY EXAMINER